

have examined some which do not in the least differ from examples from Turkestan. This form has the underparts white down to the vent, except the flanks, which are brown; while the upper parts are as in the Baikal dark-bellied form, but the head and nape are much lighter, in some old specimens these parts being light whity-brown.

In conclusion, it appears to me that all the above-mentioned Dippers may be considered as slightly modified forms of the same species, or may with equal justice be treated as very closely allied species; but I am inclined to favour the former view.

The measurements of the various forms do not differ very much, as will be seen from the table on page 386.

XXXIII.—*On the Gallinaceous Genera Bambusicola and Arboricola.* By W. R. OGILVIE GRANT.

(Plate IX.)

THIS paper contains a short review of all the known species of the above-named genera, and gives a brief synonymy of them, showing the various combinations of names, generic and specific, which have been used by different authors. It also gives references to all the good figures. Keys to the species and their geographical distribution are added, and numerous notes.

The number of tail-feathers in the various groups of Gallinæ is a very useful generic character when taken in conjunction with others: it varies enormously in the different genera. For instance, in *Excalfactoria* the minimum number (8) of tail-feathers is found; in *Coturnix* there are 10–12, in *Rhizothera* 12, in *Francolinus*, as well as in *Bambusicola* and *Arboricola*, 14, in *Perdix* 16–18, in *Tetraophasis* 18, in *Tetraogallus* 20–22, and so on. These numbers are quite constant, as I have ascertained by examining a large number of specimens of nearly every species. The number of tail-feathers can be accurately ascertained only by lifting up the upper tail-coverts, so as to expose the bases of the rectrices. When this is done there is usually no difficulty in counting the

tail-feathers and seeing whether any are missing. In some of the small Quails, such as *Excalfactoria*, it is not always easy to distinguish between the upper tail-coverts and true tail-feathers, but, by following the above method, with a little care one cannot well make a mistake.

The species marked with a † are not represented in the British Museum Collection, and those marked with a * have never been figured.

BAMBUSICOLA.

Tail of fourteen feathers, long, wedge-shaped, the outer pair of feathers being about two thirds the length of the middle pair, which are more than two thirds the length of the wing.

First primary considerably shorter than the tenth, which is equal to, or shorter than, the second. The fifth primary is slightly the longest.

Males (and sometimes females) with a pair of spurs on the tarsi.

Nails as in *Francolinus*, rather short and curved.

Key to the Species of Bambusicola †.

- A. Superciliary stripe buff; chest buff, spotted with rufous; inner webs of the primary quills mostly chestnut *B. fytchii*, ♂ ♀.
- B. Superciliary stripe grey; chest grey; inner webs of primary quills dark blackish brown.
 - a. Cheeks and ear-coverts rufous chestnut *B. thoracica*, ♂ ♀.
 - b. Cheeks and ear-coverts dark grey *B. sonorivox*, ♂ ♀.

† *La Perdrix de Gingi*, Sonnerat, Voy. Ind. Orient. ii. p. 163 (1872) [female only].

The female specimen here characterized has undoubtedly nothing whatever to do with the male, which is an *Arboricola*. Like all Sonnerat's descriptions, it is very accurately drawn up, and there cannot be the least doubt that his female *Perdrix de Gingi* is a species of *Bambusicola*, possibly *B. sonorivox* from Formosa, or some closely allied form. The description, however, differs from the Formosan bird in several important particulars; for instance, the top and hind part of the head and neck are *dirty grey*, instead of *brown*, the throat and fore part of the neck are *deep brown*, not *dark chestnut*, and the sides of the belly are *chestnut*, with *black* subter-

1. BAMBUSICOLA FYTCHII.

Bambusicola fytchii, Anders. P. Z. S. 1871, p. 214, pl. xi.; id. Yunnan, ii. Birds, p. 673, pl. liv. (1878); Hume & Marsh. Game B. ii. p. 97, pl. (1879); Fytche, Burma, ii. pl. iv. (1879).

Bambusicola hopkinsoni, Godwin-Austen, P. Z. S. 1874, p. 44.

Hab. Garo and Khasia Hills, Shillong Mt., Naga Hills, Kachin Hills in Yunnan, ranging to the south-west of Sze-chuen.

2. BAMBUSICOLA THORACICA.

Perdix thoracica, Temm. Pig. et Gall. iii. pp. 335, 723 (1815); Gray, Fasc. B. China, p. 6 (1871).

Francolinus thoracicus, Gray, Gen. B. iii. p. 505 (1846).

Sterna thoracica, Bonap. C. R. xlii. p. 883 (1856).

Bambusicola thoracica, Swinh. P. Z. S. 1863, p. 307.

Perdix sphenurus, Gray, Zool. Misc. p. 2 (1844).

Perdix sphenura, Gray, Fasc. B. China, pl. viii. (1871).

Arborophila sphenura, Gray, List Gall. B. iii. p. 38 (1844).

Francolinus sphenurus, Gray, Gen. B. iii. p. 506 (1846).

Galloperdix sphenura, Bonap. C. R. xlii. p. 882 (1856).

Bambusicola sphenura, Gould, P. Z. S. 1862, p. 285.

Arboricola bambusæ, Swinh. Ibis, 1862, p. 259.

Hab. Southern China, as far north as the valley of the Yang-tsze-kiang.

3. BAMBUSICOLA SONORIVOX.

Bambusicola sonorivox, Gould, P. Z. S. 1862, p. 285; id. B. Asia, vi. pl. 63 (1864).

Perdix sonorivox, Gray, List B. pt. v. Gall. p. 58 (1867).

Hab. Island of Formosa.

minal spots, whereas in *B. sonorivox* these parts are *rufous-buff*, with *chestnut* spots. Sonnerat's description cannot be intended for *B. thoracica*, which is the only other grey-chested species known, and I should not be in the least surprised if his bird were to be rediscovered in Luzon, the fauna of which is still only imperfectly known, and prove to be a distinct species of *Bambusicola*. This island is probably also the home of the male *Perdix de Gingi* (*Arboricola gingica*), now known only from Temminck's specimen in the Leyden Museum.

ARBORICOLA.

Tail of fourteen feathers, short and somewhat rounded, the middle pair of feathers being rather longer than the outer pair, and equal to two fifths of the length of the wing.

The first primary is about equal to the ninth (sometimes to the eighth or tenth), and the fourth or fifth is slightly the longest.

Tarsi without spurs.

Nails unusually long, rather wide, and only very slightly curved*.

Key to the Species of Arboricola †.

A. Concealed patch of downy feathers under the wing grey.

a. Feathers of the sides and flanks grey, or grey edged with chestnut, usually with a white spot or shaft-stripe on each.

a¹. Upper back olive-brown, barred and fringed with black.

a². Top of the head bright chestnut, chin and throat black, in some specimens each feather narrowly margined with white *A. torqueola*, ♂.

b². Top of the head brownish or olive-brown, each feather tipped with black.

a³. Chin, throat, and neck rufous, the two latter spotted all over with black, sometimes on the sides only *A. torqueola*, ♀.

b³. Chin and throat black, front of neck black, each feather edged with white *A. atrogularis*, ♂ ♀.

* The nails of *Arboricola* are quite characteristic, and the species of this genus may be readily recognized by them alone.

† *Perdix (Arboricola)* sp., v. Martens, J. f. O. 1866, p. 25.

Under this title a specimen in the Military Library at Manilla is briefly characterized as follows:—"Head greenish black, breast vinous-red streaked with black, sides pale red with black spots." This description is so vague that it is impossible to form a decided opinion on it, but probably the bird represents a distinct species of this genus, inhabiting Luzon.

- c³. Chin, upper part of throat, and front of neck white, lower part of throat black *A. crudigularis*, ♂ ♀.
- b¹. Upper back uniform olive-brown, not barred with black; sometimes some of the feathers are slightly fringed with black at their extremities.
- c². Chest grey; top of the head olive-brown, each feather edged with blackish brown.
- d³. Front of the neck bright rufous.
- a⁴. Chin and throat black *A. intermedia*, ♂ ♀.
- b⁴. Chin and throat rufous, thickly spotted with black *A. rufogularis*, ♂ ♀.
- e³. Front of the neck black, separated from the chest by a narrower white and a wider dark chestnut band..... *A. gingica*, ♂ ♀.
- d². Chest and top of the head chestnut; chin and throat bright rufous; front of neck white, divided from the chest by a narrow black band.. *A. mandellii*, ♂ ♀.
- b. Feathers of the sides and flanks uniform chestnut *A. javanica*, ♂ ♀.
- c. Feathers of the sides and flanks black, with narrow wide-set white bars *A. rubrirostris*, ♂ ♀.
- d. Feathers of the sides and flanks each with a large subterminal white spot, partially or wholly bordered with black.
- c¹. Chest brownish ochre or olive-buff; scapulars chestnut at the extremity; superciliary stripe pale buff *A. brunneopectus*, ♂ ♀.
- d¹. Chest bright rust-red or reddish chestnut; scapulars olive-brown at the extremity.
- e². Superciliary stripe grey *A. hyperythra*.
- f². Superciliary stripe rust-red *A. erythrophrys*, ♂ ♀.
- e. Feathers of the sides and flanks greyish, widely barred with white and black at the extremity.
- e¹. Feathers of the back dark olive-brown, faintly margined with blackish *A. orientalis*.
- f¹. Feathers of the back golden brown, fringed and barred with black *A. sumatrana*.

B. Concealed patch of downy feathers under the wing snow-white. Feathers of the sides and flanks irregularly barred or marked and mottled with brownish black and buff.

f. Sides and flanks marked and mottled with black and buff; chest olive-brown, with wavy bars of black *A. chloropus*, ♂ ♀.

g. Sides and flanks barred with black and buff; upper half of chest chestnut *A. charltoni*, ♂ ♀.

1. ARBORICOLA TORQUEOLA.

Perdix torqueola, Valenc. Diet. Sci. Nat. xxxviii. p. 435 (1825).

Arborophila torqueola, Hodgs. in Gray's Zool. Misc. p. 85 (1844); id. Icon. ined. in Brit. Mus. nos. 111-114.

Arboricola torqueola, Blyth, Cat. B. Mus. As. Soc. p. 252 (1849).

Arboricola torqueolus, Hume & Marsh. Game B. ii. p. 69, pl. (1879).

Hyloperdix torqueola, Sundevall, Tent. p. 116 (1872).

Perdix megapodia, Temm. Pl. Col. v. pls. 35 & 36 [nos. 462, 463] (1828).

Perdix olivacea, Gray in Griff. An. Kingd. iii. p. 54 (1829); id. Ill. Ind. Zool. i. pl. 57 (1830-32).

Arborophila olivacea, Hodgs. Madr. Journ. 1837, p. 303.

Perdix torquata, Less. Traité Orn. p. 506 (1831).

Hab. Southern slope of the Himalayas from Chamba eastwards as far as Sikhim, and possibly the Naga Hills, ranging from 5000 to 14,000 feet.

This is the only species in which there is any marked difference in the plumage of the sexes; that of the female resembling *A. rufogularis*, though it is easily distinguished from that species by having the legs pinkish grey, not coral-red, the feathers of the back barred and fringed with black, instead of uniform, and the grey of the chest and breast washed with olive-brown.

Hodgson, in his unpublished plates, has confused *A. rufogularis* with the female of *A. torqueola*, but to this I shall refer later on under the head of the former species.

2. ARBORICOLA ATROGULARIS.

Arboricola atrogularis, Blyth, Cat. B. Mus. As. Soc. p. 253 (1849); id. J. As. Soc. Beng. xviii. p. 819 (1849); Hume & Marsh. Game B. ii. p. 79, pl. (1879).

Perdix atrogularis, Gray, List of B. pt. v. Gall. p. 58 (1867).

Arborophila atrogularis, Hume, Str. F. ii. p. 449 (1874).

Arboricola atrigularis, Oates's ed. Hume's Nests & Eggs, iii. p. 439 (1890).

Hab. Ranges from Sudiya in Eastern Assam to the Khasia and Garo Hills, and southwards through Cachar, Tipperah, and Hill Tipperah to Chittagong; also occurs in the Kachin Hills east of Bhamo.

*3. ARBORICOLA CRUDIGULARIS.

Oreoperdix crudigularis, Swinh. Ibis, 1864, p. 426.

Perdix crudigularis, Gray, List of B. pt. v. Gall. p. 57 (1867).

Arboricola crudigularis, Blyth, Ibis, 1867, p. 160.

Hab. Mountains of the interior of Formosa.

4. ARBORICOLA INTERMEDIA.

Arboricola intermedia, Blyth, J. As. Soc. Beng. xxiv. p. 277 (1855).

Arboricola intermedius, Hume & Marsh. Game B. ii. p. 85, pl. (1879).

Arborophila intermedia, Hume, Str. F. ii. p. 450 (1874).

Hab. Naga and Garo Hills, Cachar, Manipur, Arrakan, and Pegu; also obtained in the neighbourhood of Bhamo in Burmah.

5. ARBORICOLA RUFOGULARIS.

Arboricola rufipes, Hodgs. in Gray's Zool. Misc. p. 85 (1844); id. Icon. ined. in Brit. Mus. no. 112.

Arboricola rufogularis, Blyth, Cat. B. Mus. As. Soc. p. 253 (1849); id. J. As. Soc. Beng. xviii. p. 819 (1849); Hume & Marsh. Game B. ii. p. 75, pl. (1879).

Perdix rufogularis, Gray, List of B. pt. v. Gall. p. 58 (1867).

Arborophila rufogularis, Hume, Str. F. ii. p. 450 (1874).

Arboricola rufigularis, Blyth, Mamm. & B. Burma, p. 150 (1875).

Arborophila tickelli, Hume, in Hume & Marsh. Game B. ii. p. 78, note (1879).

Hab. Lower outer ranges of the Himalayas from Kumaon through Nepal and Sikhim as far east as the Daphla Hills, north of the Darrang district. It also occurs in the higher ranges of Tenasserim, on Mooleyit.

There is no doubt that *Arboricola rufipes*, Hodgson, is the oldest name for this species, and I should not hesitate to use it instead of Blyth's, were it not for the fact that, after a careful examination of Hodgson's specimens and figures, I find that he undoubtedly confused the present species with the female of *A. torqueola*. This may best be seen by examining his plates, when it will be noted that some of the specimens figured as the females of *A. torqueola* have no black bars on the back, and clearly belong to his *A. rufipes*. No doubt the specimens in question were not seen by Hodgson until the colours of the legs (the only character by which he distinguished the two species) had faded, and had thus escaped his observation. Hume has proposed the name *A. tickelli* for the Tenasserim form of *A. rufogularis*, which usually lacks the black line dividing the rufous at the base of the neck from the grey chest; but after examining a large series of specimens from Mooleyit, I find that, though this black band is absent in the majority (in which respect they approach *A. intermedia*), it is represented in some birds of each sex by interrupted black spots at the ends of some of the rufous feathers at the base of the neck, while in one female specimen it is as strongly defined as in any from Sikhim. On the other hand, in some Himalayan birds, the black line, though indicated, is imperfect. From these facts it is clear that the Tenasserim birds cannot be separated from the Himalayan.

6. ARBORICOLA MANDELLII.

Arborophila mandellii, Hume, Str. F. ii. p. 449 (1874), & iii. p. 262, pl. i. (1875).

Arboricola mandellii, Hume & Marsh. Game B. ii. p. 83, pl. (1879).

Hab. Low hills of Bhootan and Native Sikhim.

This beautiful species is now represented in the British Museum by eleven specimens, which were all obtained by Mr. Mandelli's collectors, and now form part of the Hume Collection.

†7. ARBORICOLA GINGICA. (Plate IX.)

La Perdrix de Gingi, Sonnerat, Voy. Ind. Orient. ii. p. 167 (1782) [male only].

Tetrao gingicus, Gmel. S. N. i. p. 760 (1788).

Perdix gingica, Lath. Ind. Orn. ii. p. 648 (1790) ; Temm. Fig. et Gall. iii. pp. 410, 733 (1815).

Arboricola gingica, Blyth, Ibis, 1870, p. 174.

Hab. Quite uncertain ; possibly the island of Luzon, certainly not the Coromandel coast.

This species was first described by Sonnerat*, who, though he calls it "*La Perdrix de Gingi*," does not say where his specimen was obtained. On this description Gmelin based his "*Tetrao gingicus*," and gave as the habitat "*Gingi in Coromandel*." In 1815 Temminck redescribed the species under the name of *Perdix gingica*, from a bird in his own collection, and remarked that he had seen a similar specimen in London. If this specimen ever formed part of the British Museum Collection, it is now no longer there.

In this Journal for 1870 (p. 174) Blyth again described the same species as *Arboricola gingica*, from a bird in the Leyden Museum (no doubt the same as that described by Temminck), and it is this specimen which, by the kind permission of Dr. Jentink, and with the help of that most obliging ornithologist Mr. Büttikofer, is figured in the accompanying beautiful Plate by Mr. Keulemans.

In the 'Journal für Ornithologie,' 1866, p. 25, Dr. E. von Martens (see p. 390) briefly describes a specimen preserved

* The bird described by Sonnerat as the female of the "*Perdrix de Gingi*" is, as already pointed out on p. 388, undoubtedly a species of *Bambusicola*, probably at present unknown.

in the Military Library at Manilla. This bird is doubtfully referred to *A. gingica* by Lord Tweeddale, but anyone comparing von Martens's description with the plate must see at once that they differ in nearly every point. What the bird preserved in the Military Library really is remains to be proved; but even supposing that Luzon should be the true home of *A. gingica*, there is no reason why a second and perfectly distinct species should not exist in the same island. I am sure that when Luzon is properly explored a number of new or half-forgotten species will come to light, and that the visit of some enterprising naturalist, who would thoroughly work the hills of the interior of that island, would be well repaid.

8. ARBORICOLA JAVANICA.

Javan Partridge, Brown, Ill. Zool. p. 40, pl. 17 (1776).

Tetrao javanicus, Gm. S. N. i. p. 761 (1788).

Perdix javanica, Lath. Ind. Orn. ii. p. 651 (1790); Temm. Pl. Col. v. pl. 34 [no. 148] (1823).

Arborophila javanica, Gray, List Gall. B. iii. p. 38 (1844).

Arboricola javanica, Blyth, Ibis, 1867, p. 159.

Peloperdix javanica, Meyer, Vog.-Skel. pt. xi. pl. ci. (1886).

Hab. Mountains of Java.

I can find no authority for the occurrence of this bird in Sumatra.

9. ARBORICOLA RUBRIROSTRIS.

Peloperdix rubrirostris, Salvad. Ann. Mus. Civ. Genov. xiv. p. 251 (1879); Snelleman, in Veth, Midden-Sumatra, iv. p. 46, pl. iii. (1887).

"*Perdix vethi*," Snelleman, in Veth, Midden-Sumatra, iv. pp. 30, 31 (1887).

Hab. Mountains of Sumatra.

The feathers producing the line of white spots along each side of the crown and throat are very curious, being naked shafts bearing a white plume at the extremity. Similar structures are found among the feathers of the crown in the next species, *A. brunneopectus*, but owing to their extremities being black they are less conspicuous.

10. *ARBORICOLA BRUNNEOPECTUS*.

Arboricola brunneopectus, Tick. MS.; Blyth, J. As. Soc. Beng. xxiv. p. 276 (1855); Hume & Marsh. Game B. ii. p. 87, pl. (1879).

Arborophila brunneopectus, Hume, Str. Feath. ii. p. 449 (1874).

Arboricola brunneipectus, Blyth, Ibis, 1867, p. 159.

Arborophila brunneipectus, Wald. Ibis, 1875, p. 459.

Hab. From the Karen Hills, Tonghoo, and the Eastern Pegu Hills, to as far south as Tavoy in Tenasserim.

†11. *ARBORICOLA HYPERYTHRA*.

Bambusicola hyperythra, Sharpe, Ibis, 1879, p. 226; Gould, B. Asia, vi. pl. 71 (1879).

Hab. Lawas River, North-west Borneo.

The type specimen in the Oxford Museum still remains unique. Dr. Sharpe considered this species, as well as the following, to belong to the genus *Bambusicola*, comparing it with *B. sonorivox*, but in reality both are nearly allied to *A. brunneopectus*, and along with that species form a well-marked group of *Arboricola*.

†12. *ARBORICOLA ERYTHROPHRYS*.

Bambusicola hyperythra, Sharpe (nec Sharpe, 1879), Ibis, 1887, p. 454.

Bambusicola erythrophrys, Sharpe, Ibis, 1890, pp. 139, 284, 288, 289, pl. iv.

Hab. Mount Kina Balu, North Borneo.

This species is still known only from the specimens met with by Mr. Whitehead. It was not obtained by Mr. Hose during his recent expedition to Mount Dulit, though it may probably occur there also.

13. *ARBORICOLA ORIENTALIS*.

Perdix orientalis, Horsf. Trans. Linn. Soc. xiii. p. 184 (1822).

Perdix personata, Horsf. Zool. Res. pl. 61 (1824).

Tropicoperdix personata, Blyth, J. As. Soc. Beng. xxviii. p. 415 (1859).

Arboricola personata, Blyth, Ibis, 1867, p. 159.

Hab. Mountains of Java. .

Horsfield first called this bird *Perdix orientalis*, and subsequently, for no apparent reason, substituted the name of *personata* ; but of course the former name must be used.

*14. ARBORICOLA SUMATRANA.

Perdix personata, Gray, List B. pt. v., Gall. p. 59. (1867) [part Sumatra].

Arborophila personata, Nicholson, Ibis, 1883, p. 255.

Arborophila sumatrana, Grant, Ann. Mag. N. H. (6) viii. p. 297 (1891).

Hab. Mountains of Sumatra.

This bird is very distinct from the last-named species, with which it has hitherto been confounded, and may readily be recognized from having the feathers of the back strongly barred, as well as fringed, with black.

15. ARBORICOLA CHLOROPUS.

Tropicoperdix chloropus, Tick. MS.; Blyth, J. As. Soc. Beng. xxviii. p. 415 (1859).

Arboricola chloropus, Tick. J. As. Soc. Beng. xxviii. p. 453 (1859); Hume & Marsh. Game B. ii. p. 91, pl. (1879).

"*Phænicoperdix chloropus*, Blyth," Hartl. Arch. f. Naturgesch. xxvi. pt. ii. p. 99 (1861).

Arborophila chloropus, Hume, Str. F. ii. p. 449 (1874).

Peloperdix chloropus, Hume, Str. F. iii. p. 176 (1875).

Hab. From Tonghoo and the Eastern Pegu Hills southwards along the lower slopes of the Tenasserim Hills as far as Tavoy. It has also been recorded from Cochin China.

16. ARBORICOLA CHARLTONI.

Perdix charltoni, Eyton, Ann. & Mag. N. H. xvi. p. 230 (1845).

Francolinus charltoni, Gray, Gen. B. iii. p. 505 (1846).

Arboricola charltoni, Blyth, Cat. B. Mus. As. Soc. p. 253 (1849); Hume & Marsh. Game B. ii. p. 93, pl. (1879).

Tropicoperdix charltoni, Blyth, J. As. Soc. Beng. xxviii. p. 415 (1859).

"*Peloperdix charltoni*, Blyth," Gray, List B. pt. v., Gall. p. 58 (1867).

Arborophila charltoni, Hume, Str. F. ii. p. 450 (1874).

"*Arboricola pyrrhogaster*, Reichenb.," Blyth, Cat. Mamm. & B. Burma, p. 151 (1875).

Hab. The Malay Peninsula from Penang southwards, Sumatra, and N.E. Borneo. Mr. Hume states that it has also been sent from Bangkok, in Siam, and that it is reported to have been obtained in the Southern Tenasserim Hills.

In the females the blackish-brown barring on the lower half of the chest is more broken up and less sharply defined than in the males.

XXXIV.—*Further Additions to the Avifauna of Tsu-sima, in the Japanese Empire.* By HENRY SEEBOHM.

MR. HOLST has sent me a third collection of birds from the island of Tsu-sima, in the Straits of Corea, which enables me to add five more species to the list of birds inhabiting the island, as given above, pp. 87, 248. As before, the numbers refer to my 'Birds of the Japanese Empire.'

132. *PICUS RICHARDSI.*

In addition to the two males of this fine Woodpecker sent in the previously-mentioned package, Mr. Holst has now sent two females shot on Tsu-sima, the one on the 14th and the other on the 30th of November. The extent of white at the tip of the outer web of the third primary is one inch in one of them and an inch and an eighth in the other. There can now be no doubt of the identity of *Picus kalinowskii* from Corea with this species.

170. *SCOPS JAPONICUS.*

Mr. Holst has sent an example of the Japanese race of the Scops Owl shot on Tsu-sima on the 27th of October. It is

